Managed Switch Console Manual

Industrial Managed Ethernet Switch

Version 1.0

This document applied to models of

MSM-508,MSM-508FC/FCS/FT

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Managed Switch

RS-232 & Telnet Console Operation

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ICPDAS Managed Switch provides three access methods, RS-232, Telnet and HTTP, to configure the Switch functions. This Manual will guide you how to use the RS-232 and Telnet to access Managed Switch console.

1. Console Connection

➢ RS-232 Connection

ICPDAS RS Series Switch is shipped with a 9-pin Female D-sub & RJ-45 cable (CA-090510)，please use this cable to connect Switch's RS232 port with PC's COM port.

You can connect to Switch console by using windows Terminal Emulator,

Baud Rate : 115200
Data Bits : 8
Parity : none
Stop Bit : 1

Otherwise, you can download our free Console Emulator from RS Series Switch download page:
http://www.icpdas.com/products/Switch/industrial/software.htm

➢ Telnet Connection

Before using telnet to access console, *please mask sure the PC host and Managed Switch are on the same subnet.*

Factory default:
IP Address : 192.168.255.1
Gateway : 192.168.0.1
Mask : 255.255.0.0

Otherwise, you have to change the network setting through the RS-232 connection.

STEP 1

Click windows **[Start]** → **[Run]**
Type the Telnet command and switch's IP address.
EX: telnet 192.168.255.1

STEP 2

If connection succeeds, the login prompt will appear.

```
Account : Admin
Password : ■
```

By factory default setting, both the account and password are **Admin**.

Only one telnet connection is accepted at the same time.

2. Console Command

■ ? [COMMAND]

Description

Both “help” and “?” display a list of available commands, if parameter is not specified.

The [command] parameter is used to see detail information for a specific command

Parameters

Parameter	Description
command	Please provide the name of the command that you want detail information about.

Example

```
MS-408>? hmivalue

  DESCRIPTION
        Get/Set HMI status
  USAGE
        hmivalue [value1],[value2]
  OPTION
        [value1]
          bit0 : Disable/Enable ring pair 1.
          bit1 : Disable/Enable ring pair 2.
          bit2 : STP Protocol
          bit3 : Primary/Secondary Switch
        [value2]
          Reserved
```

■ REBOOT／RESET

Description

The reset command will initiate Ring Switch a self-restart. All current setting values remain intact.

DEFAULT

Description

The default command will restore all settings to factory default values.

Current factory default values are as follow:

COM1:baudrate 115200,8bit,none patity check, 1 stopbit

COM2:baudrate 115200,8bit,none patity check, 1 stopbit

link mask:0

communication mask:0x1f

status mask:0x3

netid:1

mac: factory-set unique MAC address

ip:192.168.255.1

mask:255.255.255.0

Example

```
MS-408>default
Enter default setting mode ...
```

IP

Description

If no IP address is specified, the “ip” command will display current IP address. To assign an IP address for TCP/IP, please input IP address in the form of “ip1.ip2.ip3.ip4” (each field contains a value in the range 0 – 255).

Example

```
MS-408>ip
        IP=192.168.255.1
MS-408>ip 192.168.255.49
        IP=192.168.255.49
```

MASK

Description

If no mask address is specified, the “mask” command will display current mask address. To assign a mask address for TCP/IP, please input mask address in the form of “m1.m2.m3.m4” (each field contains a value in the range 0 – 255).

Example

```
MS-408>mask
        MASK=255.255.0.0
MS-408>mask 255.255.255.0
        MASK=255.255.255.0
MS-408>
```

GATEWAY

Description

If no gateway IP address is specified, the “gateway” command will display current gateway address. Note that if there exits a check sum error, an error message will alert. To assign a gateway address for TCP/IP, please input gateway IP address in the form of “ip1.ip2.ip3.ip4” (each field contains a value in the range 0 – 255).

Example

```
MS-408>gateway
        Gateway=192.168.0.1
MS-408>gateway 192.168.0.254
        Gateway=192.168.0.254
MS-408>
```

MAC

Description

If no MAC address is specified, the “mac” command will display current MAC address. To assign a MAC address for Ethernet, please input MAC address in the form of “e1:e2:e3:e4:e5:e6”.

Example

```
MS-408>mac
        Ethernet Address=00:0d:e0:12:34:49
MS-408>mac 00:0d:e0:12:34:99
        Ethernet Address=00:0d:e0:12:34:99
```

Each Switch is shipped from the factory with a unique MAC address, and the value is labeled on the Switch case. DO NOT change this address unless you have a good reason to do so.

■ NETID [id number]

Description

If Net ID of Modbus is not specified, the “netid” command will display current ID number of Modbus. The command parameter [id number] is used to assign a specific ID number for Modbus Net ID.

Parameters

Parameter	Description
id number	Provides the ID number that you want to set up for Modbus Net ID.

Example

```
MS-408>netid
        Modbus Net ID = 1
MS-408>netid 9
        Modbus Net ID = 9
```

■ LMASK [mask value]

Description

This command enables you to configure relay output activation status when there is link loss occurring on port(s). The ports are corresponding to the 8 mask bits, bit 0 corresponds to port 1, etc.

TABLE 1: Bits mapping Table

Bit 7		Bit 6		Bit 5		Bit 4		Bit 3		Bit 2		Bit 1		Bit 0	
Port 8		Port 7		Port 6		Port 5		Port 4		Port 3		Port 2		Port 1	
1	on	1	on	1	on	1	on	1	on	1	on	1	on	1	on
0	off	0	off	0	off	0	off	0	off	0	off	0	off	0	off

If the mask bit of that port(s) is specified by being set up as 1, when there is a link loss occurring on that port(s), relay output will be activated. The mask value is in hexadecimal format that represents the 8 bits corresponding binary numbers, it can be either in the form of initiating “0X” plus a suffix of the hexadecimal number or eliminating “0X”; simply the hexadecimal number itself. If a mask value is not specified, the “lmask” command will display previous assigned mask value.

Parameters

Parameter	Description
mask value	Provides the mask value that you want to specify to configure status of relay when link loss occurs

Example

lmask 0x2d

Set Relay active if link lose on Port 1, 3, 4, or Port 6.

```
MS-408>lmask
        Relay mask for link lose 0000
MS-408>lmask 2d
        Relay mask for link lose 002D
```

CMASK [mask value]

Description

This command enables you to configure relay output activation status when there is communication loss occurring on port(s). The ports are corresponding to the 8 mask bits, bit 0 corresponds to port 1, etc.

The bits mapping please refer to TABLE 1. (LMASK command)

Example

cmask 0x1a

Set Relay active if communication lose on Port 2, 4, or port 6.

```
MS-408>cmask
        Relay mask for communciation lose 001F
MS-408>cmask 1a
        Relay mask for communciation lose 001A
```

SMASK [mask value]

Description

This command enables you to configure relay output activation status when there is power fail occurring on power 1 or power 2, or when the switch is being selected as the master switch.

Bit 0 corresponds to Power1, bit 1 corresponds to Power 2 and bit 3 corresponds to master switch indicator. If the mask bit of that power(s)(bit 0 and bit 1) or master switch indicator (bit 2) is specified by being set up as 1, when there is a power fail occurring on Power(s), or when the switch is selected as master switch, the corresponding relay output will be activated.

Parameters

Parameter	Description
mask value	Provides the mask value that you want to specify for the communication loss relay output

Example

smask 0x3

Set Relay active if Power 1 or Power 2 fail

```
MS-408>smask
        Relay mask for system status 0003
MS-408>smask 1
        Relay mask for system status 0001
```

LVALUE

Description

This command enables you to read link status showing by a hexadecimal number that represents the 8 bits corresponding binary numbers. Bit 0 corresponds to port 1, etc. If there is link loss occurring on port(s), the corresponding bit(s) will be set up as 1.

Example

```
MS-408>lvalue
        link lose status 00BE
```

Link loss occurring on port 2,3,4,5,6 and 8.

CMASK

Description

This command enables you to read *ring pair* communication status showing by a hexadecimal number that represents the 8 bits corresponding binary numbers. Bit 0 corresponds to port 1, etc.. If there is a communication loss occurring on port(s), the corresponding bit(s) will be set up as 1.

Example

```
MS-408>cvalue
        communciation lose status 0000
```

SMASK

Description

This command enables you to read system status showing by a hexadecimal number that represents the 8 bits corresponding binary numbers.

bit	Corresponding to:	Description
0	Power 1	If there is a power fail occurring on Power 1, bit 0 will be set as 1.
1	Power 2	If there is a power fail occurring on Power 2, bit 1 will be set as 1.
2	Master Ring Switch	If his Switch is the master Ring Switch (the Master LED indicator will be “on”) bit 2 will be set as 1.
3	Relay output status	If the relay output is activated, bit 3 will be set as 1.

Example

```
MS-408>svalue
        System status 0006
```

Power2 fail occurring, and the Switch is the Master of the topology.

HMIVALUE [value1] [value2]

Description

This command enables you to configure the Switch operation modes.

Parameters

Parameter	Description
Value 1	bit0 : set 1 to enable ring pair 1. bit1 : set 1 to enable ring pair 2. bit2 : set 1 to enable STP Protocol. otherwise is Cyber-Ring Protocol bit3 : set 1 to force Switch as the Master of topology.
Value 2	Reserved.

Example

```
MS-408>hmivalue
        HMI setting (normal) 1,0
MS-408>hmivalue 0,0
        HMI setting (normal) 0,0
```

■ RTIME [time]

Description

Recovery time is the length of time it takes to return back to normal operation after an error or other failure has occurred. This command enables you to set up the recovery time in millisecond (ms).

Parameters

Parameter	Description
time	Provides the time interval(ms) that you want to set up as the recovery time

Example

```
MS-408>rtime
        recovery time 300 (300) ms
MS-408>rtime 400
        recovery time 400 (300) ms
```

Return message: “recovery time X (Y) ms. ”

“X” (switch value) indicates the rtime value set by console command,

“Y” (operating value) indicates the actual operating value.

Value can be specified only on Cyber-Ring Protocol Mode (refer to HMIVLAUE setting).

NOTE

Use the following function to calculate an adequate rtime:

rtime = [Round(0.3*(N+1))]*100 ms

N: number of switches

Example:

If there are 5 switches (including master switch), the adequate rtime will be:

[Round (0.3*(5+1))]*100 = Round (1.8) *100 =2*100 =200 ms

If the recovery time is not longer enough, the Master LED will keep on flashing to make a warning.

■ FTIME [time]

Description

This command enables you to set up the spanning tree bridge forward delay in milliseconds (ms) . Forward delay is the time interval spent waiting to change a port from its spanning tree pre-forwarding state to a forwarding state. This is necessary because every bridge on the network should ensure no loop is formed before allowing the port to forward packets.

Parameters

Parameter	Description
time	Provides the time interval(ms) that you want to set up as the forward time

Example

```
MS-408>ftime
        forward delay 6000 (150) ms
MS-408>ftime 5000
        forward delay 5000 (150) ms
```

Return message: “forward delay X (Y) ms. ”

“X” (switch value) indicates the ftime value set by console command,

“Y” (operating value) indicates the actual operating value.

Value can be specified only on STP Mode (refer to HMIVLAUE setting).

■ MTIME [time]

Description

This command enables you to setup the spanning tree bridge maximum age in milliseconds (ms) . Max age is the maximum time a bridge waits without receiving spanning tree configuration messages before attempting a reconfiguration.

Parameters

Parameter	Description
time	Provides the time interval(ms) that you want to set up as the maximum time

Example

```
MS-408>mtime
        max age time 10000 (150) ms
MS-408>mtime 11000
        max age time 11000 (150) ms
```

Return message: “max age time X (Y) ms. ”

“X” (switch value) indicates the mtime value set by console command,

“Y” (operating value) indicates the actual operating value.

Value can be specified only on STP Mode (refer to HMIVLAUE setting).

■ HTIME [time]

Description

This command enables you to set the spanning tree bridge hello time in millisecond (ms). Hello time is the interval between transmissions of spanning tree configuration messages. All bridges send configuration messages during reconfiguration to select the designated root bridge (in this case, the switch port).

Parameters

Parameter	Description
time	Provides the time interval(ms) that you want to set up as the hello time

Example

```
MS-408>htime
        hello time 4000 (37) ms
MS-408>htime 3000
        hello time 3000 (37) ms
```

Return message: “hello time X (Y) ms. ”

“X” (switch value) indicates the htime value set by console command,

“Y” (operating value) indicates the actual operating value.

Value can be specified only on STP Mode (refer to HMIVLAUE setting).

■ COM1 [baud rate][data bit][parity][stop bit]

Description

The first serial port Com1 is assigned for RS232. This command enables you to set up the transmission speed (baud rate),data bit (data bit), parity check type (parity) and stop bit (stop bit).

The transmission speed parameter [baud rate] allows the following settings: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200. The port speed and device speed must match.

The number of data bits can be 7 (for true ASCII) or 8 (for any kind of data, as this matches the size of a byte),

The parity check code can be set to none (0), even (1), or odd (2). None (0) means that no parity bit is sent at all. Even (1) means applying even parity check, each set of transmitted bits must have an even number of set bits. Odd (2) means applying odd parity check, each set of transmitted bits must have an odd number of set bits.

Stop bit is used in asynchronous communications to indicate the end of a piece of data.

Parameters

Parameter	Description
baud rate	Provides the baud rate (300 or 600 or 1200 or 2400 or 4800 or 9600 or 19200 or 38400 or 57600 or 115200)for your usage, default value is 115200
data bit	Provides the data bit value(7 or 8), default value is 8
parity	Provides the parity check type, none (0) , even (1), odd (2):, default value is 0.
stop bit	Provides the stop bit (1 or 2), default value is 1.

Example

```
MS-408>com1
        COM1 baudrate 115200 format 801
MS-408>com1 9600 7 0 1
        COM1 baudrate 9600 format 701
```

■ COM2 [baud rate][data bit][parity][stop bit]

Description

The second serial port Com2 is assigned for RS485. This command enables you to set up the transmission speed (baud rate),data bit (data bit), parity check type (parity) and stop bit (stop bit).

Setting parameters are the same as COM1.